

Wood River Wetland Appendices

Appendix A - Breeding Ecology of Yellow Rails at Fourmile Creek, Mares Egg Spring, and additional areas in the Klamath Basin, Klamath Co., Oregon, 1998

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Abstract

During May - July 1998, we investigated the breeding ecology of the Yellow Rail (*Coturnicops noveboracensis*) in the Upper Klamath Basin in south-central Oregon for the fourth year. We focused our efforts in the Fourmile Creek and Mares Egg Spring areas in the Wood River Valley, Klamath Co. We found 6 Yellow Rail nests, one of which was active and successful, for a total of 34 nests (including 8 active nests) found in the Fourmile Creek area during the last four years. *Carex simulata* and a layer of senescent vegetation characterized vegetation at nest sites. The maximum number of calling male Yellow Rails detected on a full two night survey of Fourmile Creek was 73, and a maximum of 2 were calling at Mares Egg Spring, compared to 49 and 5 rails, respectively, in 1997, and 37 and 5 rails in 1996. Water depth at 91 male Yellow Rail calling sites in 1998 averaged 8.1 cm (SD = 4.1) compared to 6.8 cm (n = 470, SD = 3.44) over the previous three years. As in previous years, water levels in the Fourmile Creek study areas fell dramatically during the breeding season, but water depths at Yellow Rail calling sites dropped only slightly. The rails moved their territories around and eventually off the area as their particular breeding site dried up.

We captured 58 males at Fourmile Creek and Mares Egg Spring in 1998, but only recaptured 7 of 41 birds banded the previous year, and none of 48 males banded in 1995 and 1996. We had no returns at other banding locations including the BLM Wood River Wetland and Sycan Marsh. Over the last three years, 13 of the 14 returns were an average of only 173 m from where they were captured the previous year. The extremely high level of site fidelity exhibited by these birds is in contrast to the low number of total returns we have, despite intensive banding efforts. This evidence, along with no rails returning in two successive years points to low survivorship.

Although the population of Yellow Rails in south-central Oregon appears to have grown in the last few years, it is very susceptible to changes in its habitat due to probable low survivorship. A single low breeding year could affect the population size drastically. Their reliance on specific levels of shallow water habitat with large amounts of sedge cover and senescent vegetation means that their habitat and population numbers can be easily altered, and their long term

stability is questionable. Continued study will help answer this and other population viability issues, helping to ensure survival of this disjunct population.

INTRODUCTION

The Yellow Rail (*Coturnicops noveboracensis*) primarily breeds in the northern United States and southern Canada from the Dakotas east to Maine and New Brunswick. Wintering populations occur in the southeastern United States (Bookhout 1995). Historically, there were also disjunct breeding populations in southern Oregon and eastern California. There were two or three southern Oregon nesting records in 1926 (Contreras 1983, Griffie 1944) and four others in Mono County, California from 1922-1950 (McCaskie et al. 1980). However, the Yellow Rail was thought to be extirpated from the western United States until its rediscovery in the Wood River Valley on 19-20 June 1982 (Rogers 1982). The Yellow Rail is currently classified as Threatened or Endangered in some eastern and midwestern states (Bookhout 1995), Sensitive Critical under Oregon's Sensitive Species Rule as developed by the Oregon Department of Fish and Wildlife, and as a Sensitive Species by the Pacific Northwest Region of the Forest Service (Oregon Natural Heritage Program 1995).

While there is some knowledge of the breeding populations in the central and eastern states (Bookhout and Stenzel 1987, Stalheim 1974, Walkinshaw 1939) and Canada (Robert et al. 1995), there is very little information concerning the breeding population of the Yellow Rail in Oregon. Previous information on the Oregon birds consists primarily of censuses completed after 1982 (Stern et al. 1993). The wintering area of rails breeding in Oregon is unknown. Historical sightings in coastal and freshwater marshes in California including the San Francisco Bay (Grinnell and Miller 1944), and more recent sightings along the coast in Humboldt and Mendocino Cos. (Harris 1996) suggest that the Oregon birds may migrate to coastal California marshes for the winter. The lack of information is due to a small population size and secretive nature of a bird that calls primarily at night and rarely flushes from the concealing marsh vegetation.

We initiated this study in May 1995 to increase the existing information on this sensitive species in the Fourmile Creek and Mares Egg Spring areas in the Wood River Valley and elsewhere in the Klamath Basin in south-central Oregon. The objectives in 1998 were to: determine the number of male calling Yellow Rails by nighttime censusing and banding, assess site fidelity and return rates of rails banded in previous years, search for rail nests, and describe nest placement, structure, and success.

STUDY AREAS

The two main study areas are located in the Wood River Valley, Klamath County, Oregon (Fig. 1). The Fourmile Creek area (referred to as Jack Spring in the 1996 report) includes parts of sections 1, 2, 11, 12 and 13 at T34S, R6E. Land ownership is Bureau of Land Management (BLM), United States Forest Service (USFS), and private. Fourmile Creek divides the site into two relatively even areas we call Fourmile Creek North and Fourmile Creek South. The Mares Egg Spring area is in section 35, T33S, R6E and section 2, T34S, R6E. Land ownership is USFS and private. Both the Fourmile Creek and Mares Egg Spring areas are sedge and rush meadows flooded by cool springs and crossed by creeks and ditches. The western edges of the study areas are adjacent to stands of quaking aspen (*Populus tremuloides*) and willow (*Salix* sp.). The eastern edges of both study areas are bordered by canals and private lands used for grazing cattle. Sixteen other sites were surveyed in the Wood River Valley including the BLM's Wood River Wetland. Two sites outside the Wood River Valley surveyed were Klamath Marsh in the Klamath Forest National Wildlife Refuge, and Sycan Marsh, a preserve owned by The Nature Conservancy (Fig. 2).

METHODS

Censusing for Yellow Rails

From 9 May - 21 July 1998, we surveyed for Yellow Rails at the Fourmile Creek North, Fourmile Creek South, and Mares Egg Spring study sites between 21:30 and 05:00 hrs. We attempted to survey each area thoroughly at least once every ten days at night, getting to within 0.5 km of all Yellow Rail habitat. Full surveys of the Fourmile Creek area required three nights (two night north of the creek) during the peak of the breeding season due to the large number of males calling, rather than the two night surveys in 1996 and 1997 (Popper and Stern 1996, 1997). Surveys at other sites were usually conducted from roads or dikes, stopping every 0.5 km if in a vehicle. Consecutive night surveys lower the possibility that a rail would move across the creek between surveys. Weather sometimes precluded survey work because heavy rain and wind made listening for calling rails difficult. Because only males call during the breeding season, the

surveys only reflect the number of male Yellow Rails present (Bookhout 1995). Our techniques followed those used in previous years and suggested by Bart et al. (1984) and Robert and Laporte (1997), slogging through the marsh, clicking two stones together. When a rail was heard calling, its exact position was determined by approaching it carefully until the calling site was reached. The position of this site was then usually recorded using a Global Positioning System (GPS) (Pathfinder Basic Plus, Trimble Navigation, Sunnyvale, CA). The GPS files were differentially corrected and then mapped.

Capturing birds

We trapped and banded rails by approaching calling males to within 25 m and clicking rocks together to imitate the Yellow Rail call. A headlamp was used to illuminate the area in front of the observer. When the rail moved to within 1.5 m, an oversized butterfly net (.7 m x .5 m with a 1.5 m handle) or a smaller hand net was brought down over the bird. Rails were banded with a USFWS aluminum band (size 2) and weighed to the nearest 0.5 g. Usually only a few minutes of imitating the call was necessary to draw the bird in. However, sometimes the bird either did not come close enough, or simply would not approach. It was then necessary to slowly approach the clicking bird, hoping to see and capture it before it flushed. If the bird did flush, one or two more attempts were made that night, not always resulting in success. If a female or juvenile Yellow Rail was seen, an attempt was made to capture and band the bird. Newborn chicks were not banded because size 2 bands do not stay on the small legs.

Nests

We searched for nests while doing other fieldwork during the day and night. We also organized nest searching teams of two to five people and searched for nests in likely habitat areas. Due to the highly secretive locations and structure of a nest, active lifting of dead vegetation was required wherever the possibility of a nest existed (Peabody 1922). A number of times we searched for nests in a specific area after finding a Yellow Rail eggshell or seeing a female or a chick. If a nest was suspected of being active, its location was marked nearby and it was observed every other day for activity. After a nest was determined to be non-active any remaining eggs were measured, and vegetation within a 1 m² plot surrounding the nest was sampled. We measured percent cover and average maximum height.

Water depths

We measured water depth in areas of Yellow Rail activity using two methods. First, when calling rails were visually located, we measured water depth at each of the 4 cardinal directions 0.5 m from the site, and recorded the average of the 4 readings. Second, we installed seven permanent 'stream' gauges (3.33 feet tall) in the Fourmile Creek area (Fig. 3). The gauges were spread out over the study area along fence lines (for ease of relocation). These replaced the 19 temporary water stations used in 1996 and 1997 (Popper and Stern 1996, 1997). Water depths were measured approximately every ten days during the rail surveys. Six temporary water stations were also measured at Mares Egg Spring located as close as possible to the same spots used in the 1995 and 1996 field seasons. One permanent stream gauge was placed at both the Mares Eggs Spring study site and the Wood River Wetland site late in the breeding season (See Figs. 5 and 8).

RESULTS

Censusing and banding of Yellow Rails

In total, we heard 152 calling Yellow Rails in 8 surveys of Fourmile Creek South, 204 rails in 8 surveys of Fourmile Creek North, and 12 rails in 9 surveys at Mares Egg Spring. The maximum number of calling male rails heard on one night at each of the three sites were 24, 49, and 2, respectively (Table 1). The highest number of rails heard calling when Fourmile Creek North and South were surveyed on consecutive nights was 73 on 1 - 3 June.

We captured 54 males in the Fourmile Creek area (including 7 of 38 banded in 1997), and 4 males in the Mares Egg Spring area (no returns from 4 banded in 1997) (Figs. 4 and 5). The seven recaptures we had in 1998 returned very close to the same locations they were banded in 1997 (Fig. 6). The average difference in the two locations was 171 m. Return

locations in 1996 and 1997 averaged about 750 m from the original capture spot (Fig. 7). For the 14 recaptures, the mean distance between locations was 461 m. None of the 41 males that had been banded in 1995 or 1996 were recaptured. One female and three juveniles were also banded at Fourmile Creek in 1998. The mean weight of 52 male Yellow Rails banded was 57.6 g (SD = 3.4). The seven recaptures mean weight was 58.2 g (SD = 3.7) in 1998 and 56.4 g (SD = 2.8) in 1997.

At the Wood River Wetland site, we heard up to 6 males calling, and banded 4 males, with an additional 2 captured which had been banded at Fourmile Creek the same year (Table 2 and Fig. 8). At 10 other Wood River Valley locations, a total of 41 male Yellow Rails were heard, including 26 north of Dixon Road late in the breeding season in July. Two of these males were captured north of Dixon Road and had been banded earlier in the year at Fourmile Creek and the Wood River Wetland.

Within the Wood River Valley, there were two other sites in addition to Fourmile Creek, Mares Egg Spring, Wood River Wetland, and north of Dixon Road where Yellow Rails were heard over a period of at least a month and breeding is suspected. Two Yellow Rails were heard on 30 May, 30 June, and 7 July north of Hwy 62 at Wood River just east of the Sun Pass Ranch. This is a newly discovered site. Also, one rail was heard north of Hwy. 62 near mile post 87 on 30 May and 30 June.

Outside the Wood River Valley, Klamath Marsh and Sycan Marsh were the only two sites where rails were heard in 1998. Yellow Rails were not heard during surveys at Big Marsh in 1998 (Graff 1998), making the other three areas the only sites with breeding Yellow Rails known west of the Rocky Mountains.

We heard a total of 12 male Yellow Rails calling at Sycan Marsh during a 5 night survey from 16 – 20 June (Fig. 9). A male was also heard at Coyote Creek below the research station on and prior to 13 June, but not during the survey period. Seven of the males were captured and banded, with no recaptures of the two males banded in 1997. Water depths and structure of cover were similar to that at Fourmile Creek.

A total of 22 males were heard calling at Klamath Marsh from 25 – 27 May (Fig. 10). Surveys were limited by bad weather (snow and rain) and time available. No surveys were conducted off the roads and dikes, although some of the surveying was still done on foot. The same number were heard in the north half of the marsh as in 1997. Weather conditions probably contributed to the lower number of rails heard in the south half. From the partial survey that was completed, we assume the population numbers were similar to 1997.

Movements of individual rails were documented when a suspected unbanded male turned out to be a rail already banded in 1998. Four males were recaptured after traveling from the north side of Fourmile Creek to the south side – about 1.5 km. None were captured after going the other way because we concentrated banding efforts on the north side of the creek first. Another male was recaptured south of Fourmile Creek a month and a half after being banded about 4 km north at Mares Egg Spring. Two males were recaptured at the Wood River Wetland on July 15 after being banded in early June about 7.5 km away, north of Fourmile Creek. The greatest movements documented within the breeding season were two rails recaptured north of Dixon Road on 8 July. Each bird had moved a minimum of 14 km from their original capture locations at the Wood River Wetland on 18 May and Fourmile Creek on 2 June.

Yellow rail nests

In 1998, we found 6 Yellow Rail nests in the Fourmile Creek area, bringing the total over the last four years to 34 (Fig. 11). No nests were found at any other site, although we suspect breeding takes place at Mares Egg Spring, Wood River Wetlands, and Dixon Road in the Wood River Valley, as well as at Klamath Marsh and Sycan Marsh. The nests generally fit the description of nests found in previous years (Popper and Stern 1996, 1997), located in sedges and rushes surrounded by about 5 cm of water, with a senescent canopy concealing the nest cup and eggs (Table 3).

In 1998, *C. simulata* was the only species present within the 1 m² plot surrounding all of the Yellow Rail nests found (n=6), and averaged 21% cover (Table 4). Combining all 1 m² plots from 1996 - 1998 (n=31), habitat surrounding nests contained 26% cover of *C. simulata*, 6% *C. utriculata*, and 6% *Eleocharis palustris*. Species ranging between 2 and 3% cover were *C. vesicaria*, *Juncus balticus*, and *J. nevadensis*. The average total cover of live vegetation was 48.7%. Senescent vegetation accounted for almost the rest of the cover (49.7%), with only 1.6% bare ground showing, on average. The heights of the main species at the nests in 1998 averaged about 65 cm, with *C. simulata* at 63 cm tall (Table 5). From 1996-1998, *C. simulata* averaged 60 cm (n=29, SD=11.6), *C. utriculata* 69 cm (n=13, SD=9.7) and *Eleocharis*

palustris 49 cm ($n=14$, $SD=7.6$).

One nest was active when found on 13 July, and was discovered during a nighttime survey due to the observation and subsequent banding of a female close to the nest. After the female had been caught and identified, the nest was found about 0.5 m away. The nest had hatched when it was next visited on 16 July, with one chick observed leaving the nest cup. This hatching date is well within the 8 June - 9 August range determined in 1996 (Popper and Stern 1996). Four of the other nests found were discovered after seeing small pieces of egg shell, and may have been predated. The sixth nest was found after lifting the covering of senescent vegetation and appeared to have been successful.

Water depths

The water depths at 91 Yellow Rail locations in 1998 varied from 0 (damp ground) to 18 cm, with a mean of 8.1 cm ($SD = 4.1$). This was similar to the average in 1997 (8.6 cm, $n = 93$, $SD = 34.2$). The last two years were higher than the averages for calling rails in 1995 (6.4 cm, $n = 217$, $SD = 3.17$) and 1996 (6.4 cm, $n = 160$, $SD = 3.08$) but not significantly so, given the standard deviations. Over the four years of the study, the average water depth at a Yellow Rail location was 7.0 cm ($n = 561$, $SD = 3.60$). Grouping the measurements by the seven complete nighttime surveys of Fourmile Creek in 1998 shows that the average water depth at Yellow Rail locations varied from 10.8 – 7.3 cm (Fig. 12). There were only two water depth readings on adult males during the 21 July survey, so that average (6.3 cm) was not plotted.

The six permanent water gauges installed in the meadow and marsh at the Fourmile Creek study site all exhibited a decline in water depths during the breeding season except for Gauge 2 and to a lesser extent Gauge 3. The Creek Gauge (Gauge 4 - placed in Fourmile Creek) showed a minor decline overall, but rose dramatically (over 10 cm) twice. The average of the six gauges placed on the marsh dropped from 14.0 cm on 11 May to 2.9 cm on 20 July, with a peak of 15.3 cm on 3 June (see Fig. 12). This was similar to the rate of decline in water levels experienced in previous years as measured at the temporary water stations (Popper and Stern, 1996, 1997). The six Mares Egg Spring water stations dropped dramatically during the breeding season, going from an average of 4.2 cm on 11 May down to 1.2 cm on 11 and 18 July, with a maximum of 5.1 cm on 31 May (Fig. 13). This was different from past years when water levels at Mares Egg Spring were relatively level.

DISCUSSION

Numbers and returns of breeding males

The maximum numbers of male Yellow Rails calling in a complete survey at Fourmile Creek was 73 in 1998 compared to 49 in 1997 and 37 in 1996 (Fig. 14). This is a 49% increase from 1997 and a 97% increase from 1996. We believe this increase is at least partially accounted for by continued relatively wet weather and strong snow pack, which results in good water levels and cover of vegetation in the Fourmile Creek study area. Since 1995 Oregon has experienced above average precipitation after eight years below average (NOAA 1998, OCS 1999). The BLM property on the Fourmile Creek study area has also not been grazed by cattle since 1994, allowing for a high level of senescent vegetation to build up and serve as cover for both the rails and their nests (BLM 1998). The majority of the rails have been on the BLM property, particularly the northwest portion that had high numbers of rails in past years as well. The main area which was unused by the rails was the central portion of the BLM property north of Fourmile Creek, where water levels were too high for Yellow Rails. Also, only one rail was heard on the private lands south of Fourmile Creek until the 3 June survey, when four rails were heard. This is likely due to the heavy levels of grazing pressure, which leave almost no senescent vegetation, and therefore little cover early in the breeding season (Figs. 15a and 15b). The number of rails heard in the Fourmile Creek area began to drop in mid June as in past years, and fell sharply as water levels dropped.

Although we captured 4 males in the Mares Egg Spring area, only two males were heard calling during any one survey (Fig. 16). This appears to reflect males which may have been simply passing through, possibly to/from Fourmile Creek, located about 3.5 km south, or other areas. This may be related to the water levels in the wet meadow north of Mares Egg Spring which dropped starting the beginning of June and never rose back to levels similar to past years. In the previous 3 years, water levels in the area were relatively stable.

The total of 14 returns, for a 15.7% recapture rate, is relatively low, considering that we captured 74% of the maximum number of rails heard calling near Fourmile Creek in 1998, 82% in 1997 and 73% in 1996. Sixteen percent of the males banded in 1997 were recaptured the following year, as were 10% of the males banded in 1996, and 17% of those banded

in 1995. This is a relatively low recapture rate for a rare bird that utilizes scarce habitat, and is likely the result of a combination of two possibilities.

First, the Yellow Rail may be a very short lived bird. We have very little information on its life span, and know only that it lives at least 2 years from our 14 returns and the 2 returns at Seney National Wildlife Refuge in Michigan (Bookhout 1995). No one has recaptured any Yellow Rails later than the year after they were originally banded.

Second, the rails in Oregon may have relatively low site fidelity or philopatry. It is possible that they return to one of the other suspected breeding areas in Oregon or even to as yet unknown additional breeding areas in Western North America. The mean distance between return locations and original banding locations is 461 m (SD = 696 m) when using locations closest in time of year. If location information for multiple captures within the same year for two of these returns are considered, and the closest two locations are chosen, the mean distance drops to 337 m. Taking out an outlier of 2,470 m gives a mean of 173 m (range = 3 – 465 m) for the remaining 13 returns – extremely strong site fidelity for these individuals.

However, we also have evidence of movement during the breeding season between study areas, up to 14 km. Many of the Yellow Rails located north of Dixon Road on 7 July were likely on the Fourmile Creek site earlier in the breeding season. This movement appears to be the result of dropping water levels.

Yellow rail habitat

In 1996, we showed that male Yellow Rails were probably moving their territories during the breeding season in response to changes in water levels (Popper and Stern 1996). In 1997, although water levels in the Fourmile Creek area dropped significantly, water levels at calling locations did not (Popper and Stern 1997). We observed a similar relationship in 1998, with water levels at the water gauges dropping at a steep rate, while the depths at calling locations stayed relatively level (see Fig. 12). Also, as the water levels dropped, so did the number of rails heard calling.

As in 1997, areas of the Fourmile Creek site were affected by water management activities on adjacent lands. This was especially apparent north of the creek near where Crane Creek enters from the canal between the private and federal lands. When fields north of the BLM property were being flood irrigated, the water levels on the BLM lands rose. Similarly, when the fields were being drained, water levels dropped on the study site, even to the extent that water was flowing backward out of Crane Creek north into the (now low) canal. This type of water level fluctuation can drastically affect a critical aspect of Yellow Rail habitat.

The cover of vegetation at the Fourmile Creek site has been high, especially the senescent cover on BLM lands. All nests found in 1998 had at least 40% cover of senescent vegetation. Also, only one rail was located on private lands through May, even though water levels were not a problem. The main reason for the low level of use appeared to be a lack of sufficient cover from senescent vegetation due to heavy grazing the previous year. Once the vegetation had a chance to grow and provide cover for the adults in June, more rails began to occupy the private lands.

Recommendations

Continued banding and monitoring of Yellow Rails at Fourmile Creek and elsewhere will assist in better understanding its life history. Questions which need to be answered include site fidelity and life span. Now that 161 males have been banded over the last 4 years, one of, if not the largest existing population of banded Yellow Rails is available to answer population viability questions. The banding of 3 juveniles in 1998 is a unique opportunity to catch a Yellow Rail in 1999 whose age we will be able to determine. Also, we have the opportunity to study the presence of probable breeding populations at the Wood River Wetland and Sycah Marsh after a first year of intensive censusing and banding at both locations. Only by continuing the banding and monitoring will we be able to address these issues and adequately manage for this rare species.

The two important habitat characteristics that are under control of land managers are water levels and cover of vegetation. Permanent water gauges were installed at the Fourmile Creek, Mares Egg Spring, and Wood River Wetland sites. These gauges can assist in monitoring the effects of dams and dikes, both on federal and adjacent private lands. The management of dikes, head gates, and check dams is a critical environmental factor affecting habitat of breeding Yellow Rails, and one which land managers have the ability to control. Using dikes for flood irrigation can result in

flooded nest sites, and cleaning of dikes can result in the lowering of water tables, as seen at Dixon Road, Fort Klamath Historical Monument, Crooked Creek, Fourmile Creek, and the BLM Wood River property (Popper and Stern 1996, Stern et al. 1993).

Vegetative cover is the other extremely important factor for good Yellow Rail habitat, and both amount of cover and type of cover should be considered. If grazing occurs, the levels should be relatively light to allow sufficient senescent and live vegetative cover (averaging almost 100% at known Yellow Rail nest sites) and height to be available for the next year. We continue to recommend that grazing not begin in areas utilized by breeding Yellow Rails until mid August. If the proposed action in the BLM Fourmile Property Grazing EA (#OR-014-96-03) is accepted, we strongly advocate that appropriate monitoring and management occur to examine how and if the levels of grazing are impacting breeding Yellow Rails. This would include building more fences to allow decisions on grazing to be made on a smaller scale, as well as rest pastures for various lengths of time from one to at least three years. Accurate forage utilization data including frequent checks of exclosures and grazing levels and patterns need to be collected to allow for comparison between years. Yellow Rail surveys should be completed before cattle are placed in the pastures.

Conclusion

We heard a maximum number of 73 Yellow Rails calling in the Fourmile Creek area in 1998 compared to 49 in 1997 and 37 in 1996. Reasons for this increase may be associated with more rain and snowfall in recent years which may have created better habitat conditions. This is the most densely populated breeding area of Yellow Rails west of the Rocky Mountains, and probably throughout its range. The small number of areas where Yellow Rails breed in Oregon suggests that site fidelity would be high, but we have only 14 returns of 89 banded in the previous 3 years at Fourmile Creek and Mares Egg Spring. This low number of recaptures with a high degree of individual site fidelity indicates low annual survivorship.

There are three general areas where we believe Yellow Rails bred in Oregon in 1998: Wood River Valley, Klamath Marsh, and Sycan Marsh. By adding the maximum survey counts for all the sites located in these areas, we estimate a minimum population of 153 males in 1998 in Oregon. However, only a partial survey was done in bad weather at Klamath Marsh, so we will increase the count to equal those heard in 1997 at that site for a total of 170. However, we determined that maximum survey counts probably underestimate the number of rails using an area by 30% (Popper and Stern 1996). Therefore we estimate the total breeding population at known sites in Oregon in 1999 to be 200 – 250 pairs.

A population of this size and low survivorship is extremely susceptible to year to year changes in its habitat. Their reliance on specific levels of shallow water habitat with large amounts of sedge cover and senescent vegetation means that their habitat and population numbers can be easily altered, and their long term stability is questionable. The Yellow Rail banding effort in the Fourmile Creek area is the most intensive effort undertaken in the United States, and continuation will assist in understanding population dynamics and patterns of movement of this disjunct population.

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